



Correlation between sensory data and
chemical data:

case study

Touriga Nacional Wine

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**“ The
flavour
Assault ... ”**



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Defining: "The Goal" 




Targeting the "varietal aroma"
of Touriga Nacional ...

Brand Key


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Material & Methods 



35 wine samples

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Material & Methods 




... Started with 32
Assessors ...

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1st step: Establish the Touriga sensory profile



Profiling



"typical" TN Wines

FREE DESCRIPTION = 41 Descriptors

1st Elimination
Removed non-relevant attributes

ATTRIBUTES
(perceived/non perceived)

Select terms with
geometric mean > 50 %

11 Attributes...

- Balsamic
- Veggie
- Herbaceous
- Bergamot
- Floral
- Dried fruit
- Spicy
- Berry fruit
- Tree fruit
- Tropical fruit
- Citrus
- Nutty

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2nd step: Consensus Training







9 Sessions | 14 Panelists | 11 Aroma standards

Consensus Training

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Reference Standards

Balsamic	Two drops of menthol and eucalyptus essence
Veggie	Asparagus (several drops of brine of canned asparagus)
Herbaceous	Fresh cut grass
Bergamot	One coffee spoon of earl grey tea
Floral	One drop of violet essence
Dried fruit	dried fruit mix (figs+ raisins+ prunes)
Spicy	Few grains black pepper
Berry fruit	Two Tablespoons of wild fruit preserves (cassis+ cherry+ strawberry)
Tree fruit	Tree fruit mix (peach+ apple)
Tropical fruit	One Teaspoon of Tropical fruit mix (passion fruit pulp + canned pineapple)
Citrus	One Teaspoon of a mixture of orange/lemon natural extracts+grapefruit juice
Nutty	One tablespoon of Nuts mix (pecan + walnuts + almonds)

<http://www.winearomawheel.com/>

All the standards were presented in 2oz (59.2mL) soufflé containers with plastic lids

Consensus Training

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"Aroma Wheel"

Consensus Training

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Profiling: Touriga Nacional

Consensus Training

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3rd step: Wine Evaluation

Scoring

Structured 0-15 scale

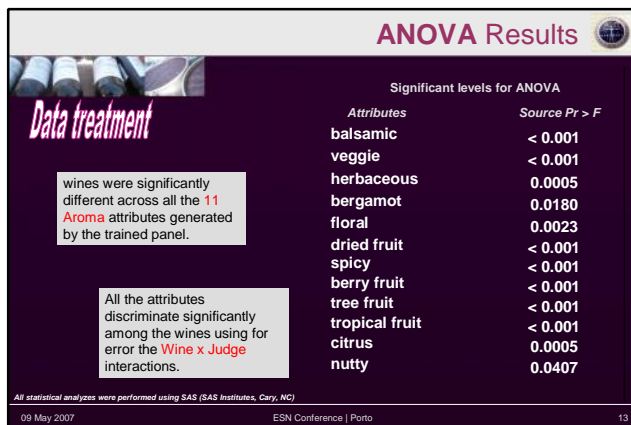
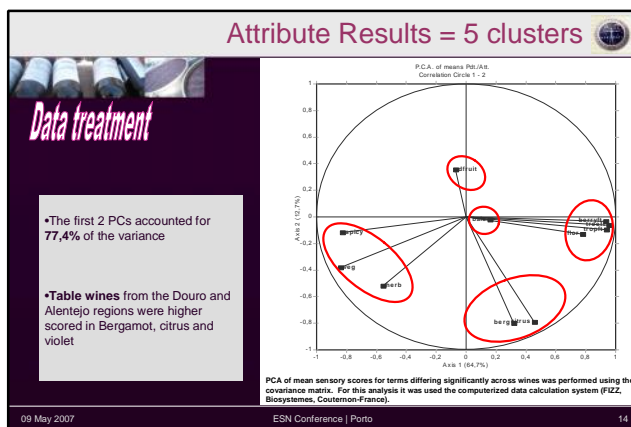
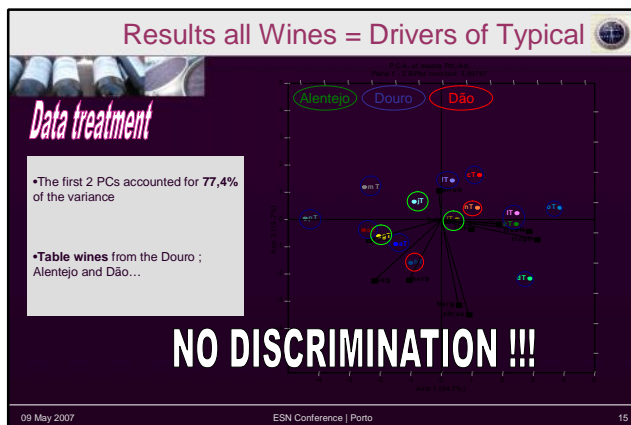
12 Sessions

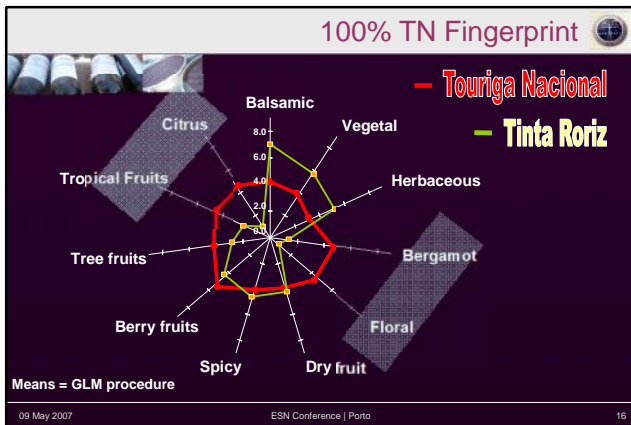
3 Wines/Session

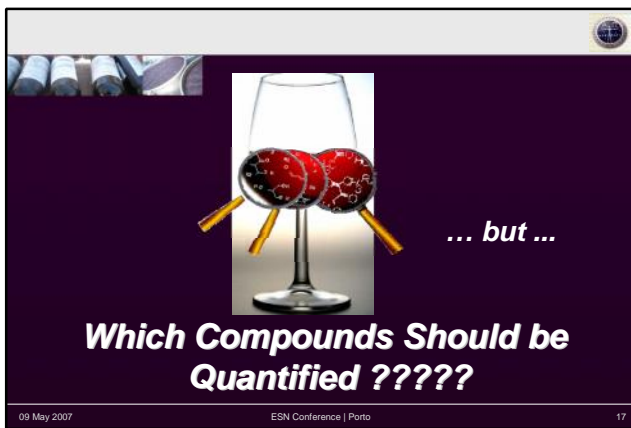
14 Reproducible Panelists

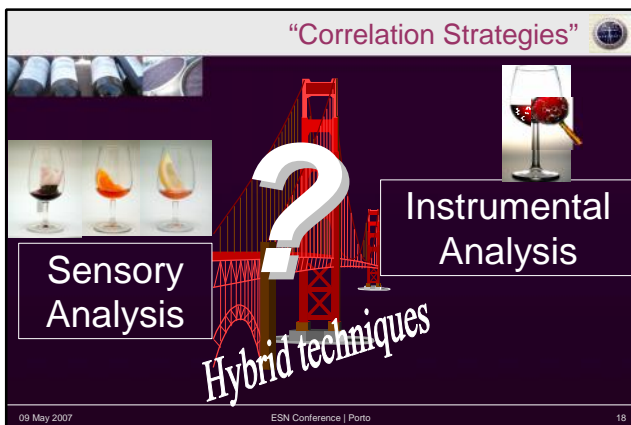
Rate 11 Aroma Attributes

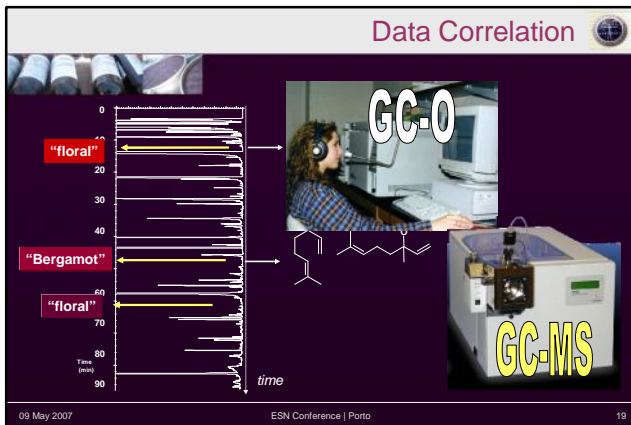
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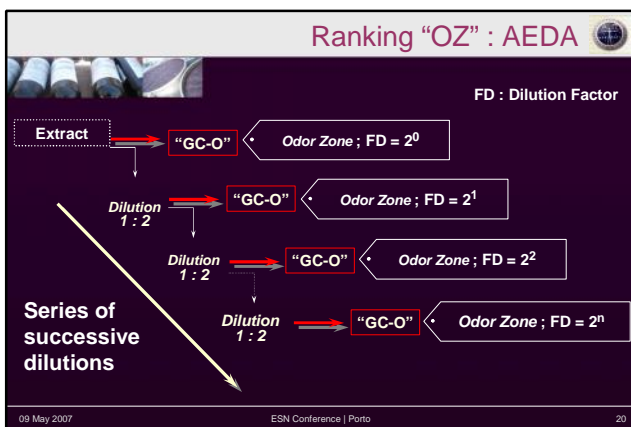
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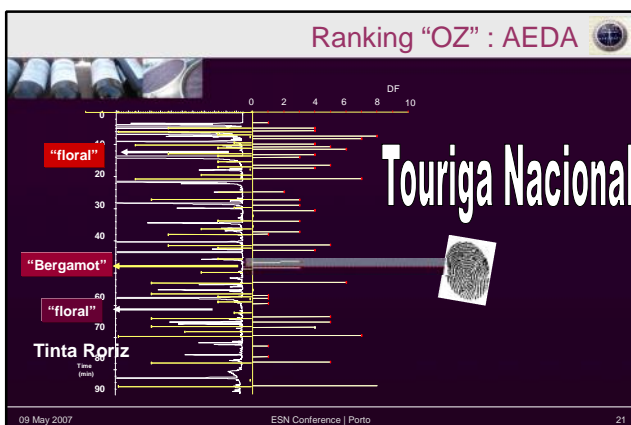


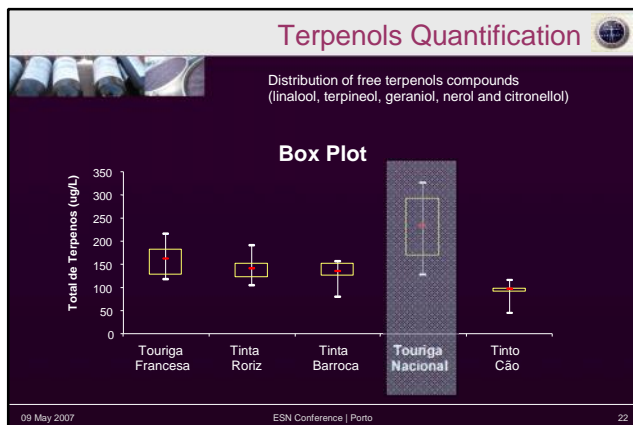


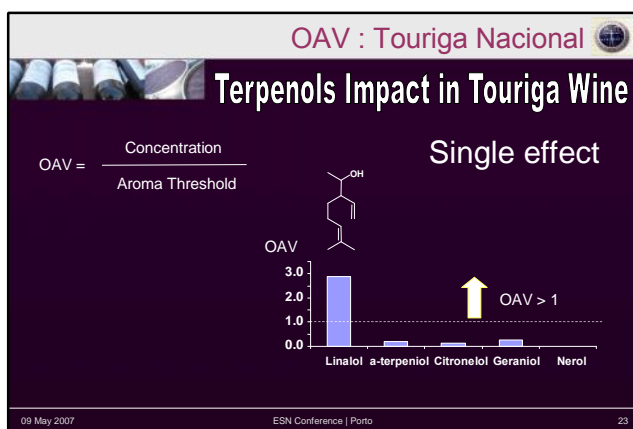


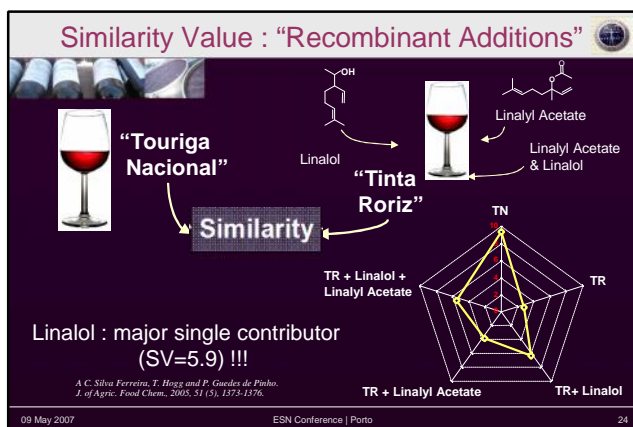


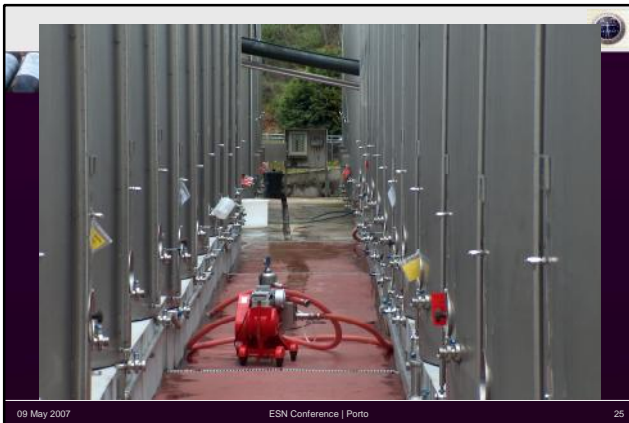












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"Combined Fraction"

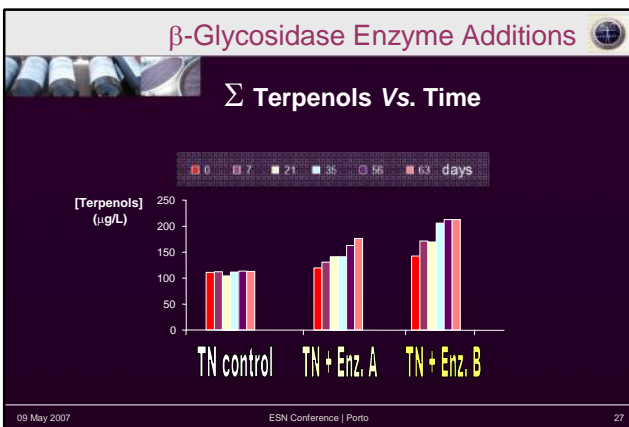
R = Various monoterpene alcohols

β -Glycosidase

Free aroma compounds

"Grape Quality"

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Conclusion



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